

Three new species of
Aphelinidae (Hymenoptera :
Chalcidoidea) parasitic on
Aonidiella orientalis (Newst.)
from India¹

BY

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(With fifteen text-figures)

INTRODUCTION

The coccid *Aonidiella orientalis* (Newst.), an important pest of fruit trees, is parasitized by several species of chalcids. From India the following encyrtid and aphelinid parasites have been so far recorded:

- Encyrtidae: 1. *Comperiella bifasciata* Howard, 1906
2. *Comperiella lemniscata* Compere & Annecke, 1961
3. *Comperiella unifasciata* Ishii, 1925
4. *Thomsonisca indica* Hayat, 1970
- Aphelinidae: 5. *Aphytis chrysomphali* (Mercet, 1912)
6. *Aphytis lingnanensis* Compere, 1955
7. *Azotus qadrii* Agarwal, 1964
8. *Coccophagoides orientalis* (Agarwal, 1964)
9. *Marietta javensis* (Howard, 1907)
10. *Physcus reticulatus* Compere & Annecke, 1961
11. *Physcus* sp. (near *flaviventris* Howard)

In this paper three new species belonging to the aphelinid genera *Marlattiella* Howard, *Physcus* Howard, and *Ablerus* Howard are described. The genera *Marlattiella* and *Ablerus* are new records for India.

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Marlattiella HowardHoward, 1907, *U. S. Dep. agric. Bur. Ent. Tech. Ser.* 12:73Type species: *Marlattiella prima* Howard*Marlattiella maculata* sp. nov.

(Figs. 1-3)

Female —

Length, 0.86 mm. Head whitish; epistoma, basal half of genal sulcus and an inverted 'Y' shaped patch on occiput above foramen brown. Antennae whitish except club which is brown on basal two-thirds and yellow on apical third. Thorax whitish with brown or dusky as follows: Centre of pronotum and propodeum except sides brown; three patches on anterior margin of mesoscutum and two patches on posterior fourth, two patches on anterior third and whole of posterior margin of scutellum dusky. Fore wings hyaline with a faint infuscated patch below marginal vein. Hind wings hyaline. Legs whitish. Gaster whitish with a dark brown patch on dorsum extending from base to level of cercal plates, sides and tenth tergum white.

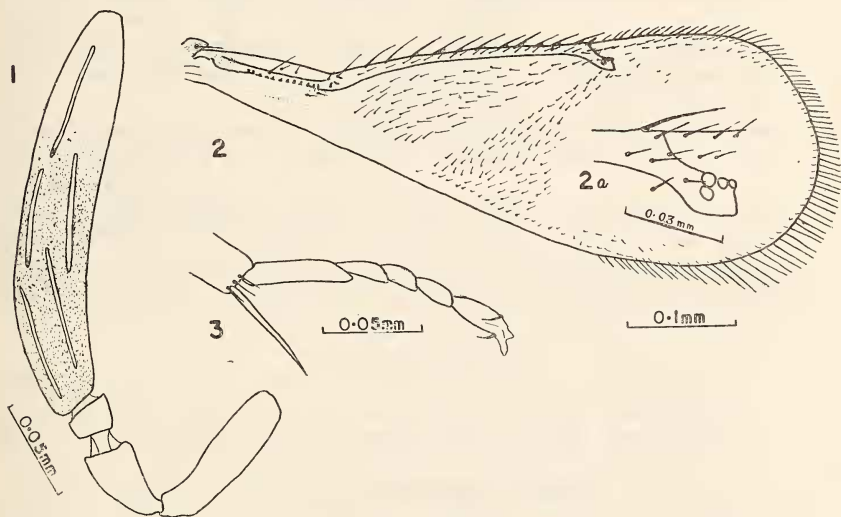


Fig. 1-3. *Marlattiella maculata* sp. n. ♀. 1. antenna; 2. fore wing; 2a. stigmal vein; 3. distal part of middle leg.

Head as wide as thorax; frontovertex width nearly one third head width (6.75:18), one and a half times as long as wide; eyes with short hairs; ocelli arranged in acute triangle, lateral ocelli removed from eye rim by one ocellus diameter and from occipital margin by two ocellar diameters. Proportions of antennal components as in Fig. 1.

Pronotum composed of two triangular plates joined in middle by a membrane, postero-lateral angles with a long seta; mesoscutum, parap-

sides and scutellum with 6, 2+2 and 4 setae respectively.

Fore wings a little less than three times as long as wide (20:7); marginal vein longer than submarginal vein (17.5:7.5), these veins with 12 and 1 setae; postmarginal vein absent; stigmal vein as in Fig. 2a; marginal fringe one fifth width of wing (Fig. 2). Hind wings six times as long as wide; marginal fringe as long as width of wing.

Tibial spur of middle leg (Fig. 3) a little longer than basitarsus.

Gaster slightly longer than thorax (25:23); ovipositor extends from second segment, exerted part one fifth length of gaster.

Male—Not known.

MATERIAL STUDIED: Holotype ♀, INDIA: Uttar Pradesh, Aligarh, ex *Aonidiella orientalis* (Newst.), on *Ficus* sp., 22.vii.1968, Coll. M. Hayat. Holotype will be deposited in the Zoological Survey of India, Calcutta.

Comments.—*M. maculata* can be easily separated from the other two known species by the following key characters:

1. Club about as long as scape; mesoscutum, scutellum and parapsides with 26, 4 and 1+1 setae respectively; submarginal vein with 2 setae..... *secuda* Compere³
1. Club longer than scape, pedicel and funicle combined; mesoscutum, scutellum and parapsides with 6, 4 and 2+2 setae respectively; submarginal vein with 1 seta 2
2. General colour orange yellow; fore wings hyaline, speculum mesally bounded by about 40 setae, marginal fringe about one third of width of wing *prima* Howard
2. General colour whitish with dusky or brown patches, dorsum of gaster except sides and tenth tergum brown; fore wings with a faint infuscated patch below marginal vein, speculum mesially bounded by about 70 setae, marginal fringe one fifth of width of wing....*maculata* sp. nov.

Phycus Howard

Howard, 1895, *U. S. Dep. agric. Ent. Tech. Ser.* 1:43

Type species: *Coccophagus varicornis* Howard

***Phycus aligarhensis* sp. nov.**

(Figs. 4-9)

Female —

Length, 0.83 mm. Head blackish brown; eye rim and frontovertex testaceous yellow. Thorax blackish brown with testaceous yellow portions as shown in Fig. 4 (unstippled areas). Gaster white with a longitudinal brown band on each side extending from base to cercal plates. Scape except apex brown, apex of scape and rest of antenna pale yellow. Wings hyaline. Legs pale yellow, marked with dusky as follows:

³ Rosen and De Bach (1970) consider it as a 'dubious species of *Aphytis*, possibly a "connecting link" between *Aphytis* and *Marlattella*'.

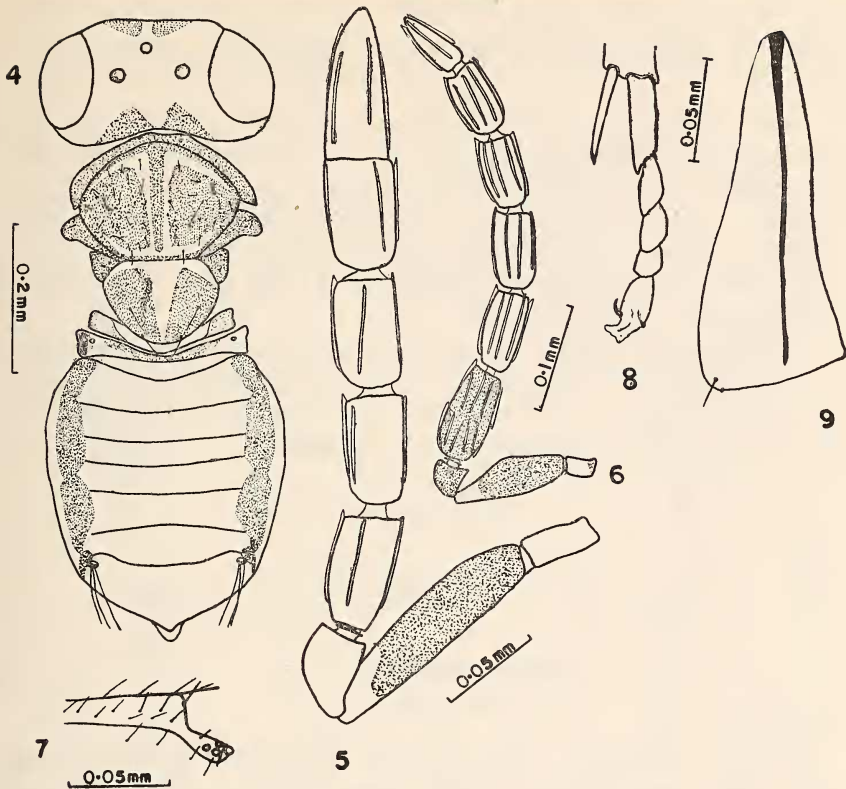


Fig. 4-9. *Physcus aligarhensis* sp. n. ♀, ♂. 4. entire female, antennae, wings and legs removed; 5. antenna, female; 6. antenna, male; 7. stigmal vein; 8. distal part of middle leg; 9. outer plate of ovipositor.

coxae, femora except distal ends and basal half of tibiae of fore legs; distal half of femora and basal half of tibiae of middle legs; apices of coxae, apices of femora and basal half of tibiae of hind legs.

Head broader than thorax (9:7.5); frontovertex about one half of head width; ocelli arranged in obtuse triangle; antennal sockets situated far above oral margin, their upper margins a little above an imaginary line drawn across lower eye margins. Proportions of antennal components as in Fig. 5.

Fore wings two and a half times as long as wide (22:9); submarginal vein as long as marginal vein, these veins with 8 and 9 setae; stigmal vein short (Fig. 7); postmarginal vein absent; length of marginal fringe one fifth width of wing. Hind wings six times as long as wide, marginal fringe shorter than wing width.

Tibial spur of middle leg as long as basitarsus (Fig. 8).

Gaster as long as thorax; outer plates of ovipositor (Fig. 9) with a submarginal ridge along dorsal margin; third valvulae one and a half

times longer than tibial spur of middle leg; ovipositor not exerted.

Male—Essentially similar to the female except for the following differences:

Body completely blackish; scape except apex, pedicel and first funicle segment brown, rest of antenna yellow; proportions of antennal components as in Fig. 6.

MATERIAL STUDIED: Holotype ♀ : 2 ♀, 1 ♂, paratypes, INDIA: Uttar Pradesh, Aligarh, ex *Aonidiella orientalis* (Newst.), on *Ficus* sp. 18.vii.1968, Coll. M. Hayat. Material will be deposited in the Zoological Survey of India, Calcutta.

Comments—*P. aligarhensis* sp. n. comes closest to *P. flavoflagellatus* De Santis, 1940, but differs by the specific body colour, length of marginal fringe of both fore and hind wings, and in the male by the brown colour of the first funicle segment.

Ablerus Howard

Howard, 1894, *Insect Life* 7:7

Type species: *Centrodora clisiocampae* Ashmead

Ablerus aonidiellae sp. nov.

(Figs. 10-15)

Female—

Length, (excluding exerted part of ovipositor), 0.61 mm (0.09 mm). Head white; occiput blackish, shiny; malar space with a brown band extending from postgenae, passing below the eyes, and touching antennal sockets. Thorax and gaster dark brown with faint violet and greenish reflections. Dorsal surface of scape, basal two-thirds of pedicel, funicles I and III and club brownish; rest of antenna white. Fore wings infuscated with apical third hyaline. Hind wings hyaline. Legs: coxae except apices, fore and middle femora except base and apical half, hind femora except base and apex narrowly, fore and middle tibiae except base and apical half, hind tibiae except apex, and last tarsal segment of all legs brown; rest of parts white.

Frontovertex width one fourth head width (1:4), a third longer than its own width (3:2); ocelli in obtuse triangle, lateral ocelli near to eye rim and removed from occipital margin by one ocellus diameter; antennal sockets removed from facial margin by a distance equal to length of a socket; malar space as long as eye width; mandibles with two teeth and a dorsal truncation. Proportions of antennal components as in Fig. 10.

Thorax shorter than gaster (3:5); pronotum (Fig. 12) with anterior and posterior margins concave, each postero-lateral side with 2 brown setae; mesoscutum, axillae and scutellum with 4, 1+1 and 4

setae respectively; scutellum over twice wider than long (25:11); median length of propodeum a trifle over three times that of metanotum (13:4); mesopostphragma one-third length of gaster, its apex truncate.

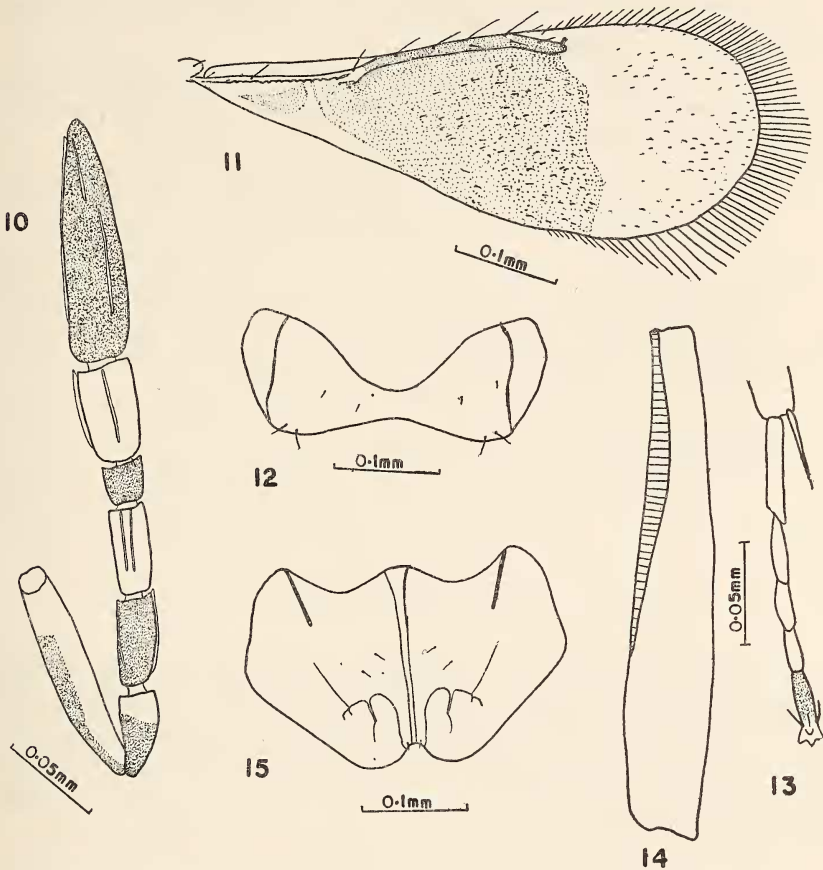


Fig. 10-15. *Ablerus aonidiellae* sp. n. ♀. 10. antenna; 11. fore wing; 12. pronotum; 13. distal part of middle leg; 14. outer plate of ovipositor; 15. subgenital plate.

Fore wings (Fig. 11) with submarginal vein longer than marginal vein, these veins with 2 and 4 setae; length of marginal fringe $\frac{1}{3}$ width of disc. Hind wings six times as long as wide; marginal fringe as long as width of wing.

Tibial spur of middle leg shorter than basitarsus (Fig. 13).

Gaster longer than thorax; outer plates of ovipositor (Fig. 14) narrow, dorsal margin with an inflexion extending from base to two-thirds length of the plate; subgenital plate (Fig. 15) with a notch in middle of posterior margin, sides of notch followed by wavy ridges, mid-longitudinal groove and antero-lateral apodemes present; exerted

part of ovipositor one third length of gaster.

Male—Not known.

MATERIAL STUDIED: Holotype ♀ : 2 ♀, paratypes, INDIA: Uttar Pradesh, Aligarh, ex *Aonidiella orientalis* (Newst.), on *Psidium guajava* L., 12.ix.1969, Coll. M. Hayat. Material will be deposited in the Zoological Survey of India, Calcutta.

Comments—*A. aonidiellae* sp. n. can be easily separated from *A. clisiocampae* (Ashmead) and *A. magistrettii* Blanchard, to which it is most closely related, by the following key characters:

- | | |
|--|-------------------------------|
| 1. Marginal vein with 4 setae; apical one third of fore wing hyaline; length of marginal fringe one third width of wing. Hind wing with marginal fringe as long as width of wing. Basitarsi of all legs whitish..... | <i>aonidiellae</i> sp. n. |
| 1. Marginal vein with 3 setae; apical one fourth of fore wing hyaline; length of marginal fringe 1/5 to 1/6 width of wing. Hind wing with marginal fringe shorter than width of wing. Basitarsi of all legs brown..... | 2 |
| 2. Submarginal vein with 2 setae. Second tarsal segment of all legs whitish. Tibial spur of middle leg shorter than basitarsus..... | <i>magistrettii</i> Blanchard |
| 2. Submarginal vein with 1 seta. Second tarsal segment of all legs brown. Tibial spur of middle leg as long as basitarsus..... | <i>clisiocampae</i> (Ashmead) |

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